

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Nguyen, et al.

Serial No.: 09/912,103

Confirmation No.: 4476

Filed: July 23, 2001

**For: Selective Etching of
Organosilicate Films Over
Silicon Oxide Etch Stop
Layers**

Group Art Unit: 2823

Examiner: Khiem D. Nguyen

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited on with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, or electronically transmitted to the U.S. Patent and Trademark Office via EFS-Web to the attention of the Commissioner for Patents, on the date shown below.

11/7/06

Date _____

Pin 2 when

Signature

DECLARATION UNDER 35 C.F.R § 1.131

I, Li-Qun Xia, in support of conception and reduction to practice of claimed subject matter prior to filing of the present application on July 23, 2001, hereby declare:

1. I was a co-inventor with Huong Thanh Nguyen, Michael Scott Barnes, and Mehul Naik of the subject matter described and claimed in the present application filed on July 23, 2001 and am familiar with the disclosures and pending claims;
2. That we jointly conceived of the subject matter of all independent claims pending in this application prior to December 22, 2000, the filing date of *Annapragada et al.*;
3. That our conception of the claimed subject matter of the pending independent claims prior to December 22, 2000, is evidenced by Exhibit A, which is an invention alert disclosing the etching of organosilicate dielectric material with chemistry containing significant levels of hydrogen containing fluorocarbon gases;

4. That the invention alert shown in Exhibit A was prepared prior to December 22, 2000 and all dates masked as "DATE" in Exhibit A are prior to December 22, 2000;

5. That we diligently pursued the subject matter of the pending claims from a time beginning before December 22, 2000 until filing of the present application on July 23, 2001;

6. That we submitted the invention alert shown in Exhibit A to our in-house legal department on a date prior to December 22, 2000;

7. That our in-house legal department submitted the invention alert shown in Exhibit A to an outside legal firm for prosecution of the above identified application prior to December 22, 2000;

8. That subsequent reduction to practice of the invention occurred at latest on July 23, 2001 with the filing of the above identified application.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 11/1/2006



Li-Qun Xia

EXHIBIT “A”

INVENTION ALERT FORM

INVENTION ALERT FORM

DM / JW
DD/LOWK
2445

TO: Gaile Bailey
Extension:

M/S 2061
32724

MASK

ALERT NO: _____

Current Date:

Mask

0005619

CIRCLE ONLY ONE FROM EACH TOP SECTION:

1) OWNER 2) DIVISION 3) FINANCIAL COST CENTERS(PGB)

PLEASE SUBMIT ONE ORIGINAL, SIGNED DOCUMENT FOR RECORDING. IF THIS IS A COPY OF A PREVIOUSLY SUBMITTED ALERT, PLEASE MARK IT ACCORDINGLY

OWNER:	AMAT	AMT	AMSEA	AMK	AMJ	AKT
TPI	PDD	ETCH	OTHER	CHANGE D-CORE	MD	AKT
AIT 0723	KPU1 0166	METAL 0881	IBSS 0676	CORE 0793	COPPER 2492	OPAL
ORION 2471	KPU3 0281	SILICON 0916	SMO GASFLOW 1659	ATD 1301	PLUG 2492	ORBOT
CAP 2512	KPU8 0195	IPS *0521	SMO PUMPS 1651	GREEN 2590	LINER/ BARRIER 2492	APD 2613
SWIFT 1755	PSI 2442	COM ENG 1419	WMO/Austin 2081		ECD/CU 2492	ICT
EPI 2470	CMP 1399	SMO 1659	PRP 1654		COMMON 2492	
TPO* 0584	LOWK 2445	CORE TECH 1245	300mm 2199		IMS 2492	
					BASELINE 2492	

*TPO - RTP/HTF/OXDL

**IPS - MXP/RPS/HDP

Please use separate attachments for any answers that don't fit on the form, especially for questions 3-8. If the answer to a question is "NONE", please write "NONE" rather than leaving the answer blank.

1. Title of Invention (please print clearly):

Selective Etching of Organosilicate Films Over Oxide Stop Layers

2. Inventors-Names only-(please print clearly and provide complete information at Section 9.)

Huong Thanh Nguyen

Michael Scott Barnes

Li-Qun Xia

3. Earliest dates and model names of all Applied products incorporating the invention which have been offered for sale or are expected to be offered for sale:
4. If the invention has been demonstrated or described to persons other than Applied employees, for each disclosure please provide the earliest date, name of company, a brief description of what was disclosed and the purpose of the disclosure. Attach a copy of any related non-disclosure agreements:
5. If future disclosures like those in Question #4 are expected to occur within the next 12 months, please provide the anticipated date, type of information to be disclosed, and purpose of the disclosure: NONE []
6. Describe any other known designs or processes, whether actually implemented or merely proposed in a publication, which could be considered similar to your invention or which constitute the state-of-the-art improved upon by your invention: If described in a publication, attach a copy of same or provide a citation.

7. List each feature of the invention which you consider novel and non-obvious. Describe the advantages of each novel feature in comparison with the state-of-the-art approaches which are most similar to your invention:

- a) The use of a TEOS or silane oxide dielectric stop layer for dual damascene structure with organosilicate film as the main dielectric
- b) Etching of organosilicate dielectric material with chemistry containing significant levels of hydrogen containing fluorocarbon gases (pure H₂ could be added to the chemistry as well)

8. Describe the invention, preferably with reference to attached drawings:

- a) Construct a dual damascene structure with an organosilicate dielectric for the main film and a TEOS or silane oxide as a stop layer(s).
- b) Etch the main dielectric film with chemistry containing significant levels of hydrogen containing fluorocarbon gases (pure H₂ could be added to the chemistry as well)
- c) Etch stop layer with reduced levels of hydrogen containing fluorocarbon gases

ATTACH ADDITIONAL SHEETS TO DESCRIBE INVENTION AS NEEDED

9. Provide the following information for EACH inventor:

Inventor #1:
 Legal Name: Huong Thanh Nguyen - Employee # [REDACTED] Mail Stop [REDACTED]
 Work Phone [REDACTED] Fax No.: [REDACTED]
 Job Title: [REDACTED]
 Citizenship: [REDACTED]
 Home Address: [REDACTED]
 Manager: [REDACTED] Title: [REDACTED]
 Div. Manager [REDACTED] Title: [REDACTED]
 Product Group: [REDACTED] Dept #: [REDACTED]

Inventor #2:
 Legal Name: Michael Scott Barnes Employee # [REDACTED] Mail Stop [REDACTED]
 Work Phone [REDACTED] Fax No.: [REDACTED]
 Job Title: [REDACTED]
 Citizenship: [REDACTED]
 Home Address: [REDACTED]
 Manager: [REDACTED] Title: [REDACTED]
 Div. Manager [REDACTED] Title: [REDACTED]
 Product Group: [REDACTED] Dept #: [REDACTED]

Inventor #3:
 Legal Name: Li-Run Xia Employee # [REDACTED] Mail Stop [REDACTED]
 Work Phone [REDACTED] Fax No.: [REDACTED]
 Job Title: [REDACTED]
 Citizenship: [REDACTED]
 Home Address: [REDACTED]
 Manager [REDACTED] Title: [REDACTED]
 Div. Manager [REDACTED] Title: [REDACTED]
 Product Group: [REDACTED] Dept #: [REDACTED]

FOR ADDITIONAL INVENTORS, PLEASE COMPLETE AND ATTACH ADDITIONAL SHEET AS NEEDED.

ADDITIONAL INVENTORS:

Inventor # :	
Legal Name:	Employee # _____ Mail Stop _____
Work Phone	Fax No.: _____
Job Title:	_____
Citizenship	_____
Home Address	_____
Manager:	Title: _____
Div. Manager	Title: _____
Product Group:	Dept #: _____

Inventor # :	
Legal Name:	Employee # _____ Mail Stop _____
Work Phone	Fax No.: _____
Job Title:	_____
Citizenship:	_____
Home Address	_____
Manager:	Title: _____
Div. Manager	Title: _____
Product Group:	Dept #: _____

Inventor	
Legal Name:	Employee # _____ Mail Stop _____
Work Phone	Fax No.: _____
Job Title:	_____
Citizenship:	_____
Home Address:	_____
Manager	Title: _____
Div. Manager	Title: _____
Product Group:	Dept #: _____

10. Signature, date and **PRINTED** name of each inventor plus two witnesses who have read and understood this Invention Alert form:

Inventors:

mask
Huong T. Nguyen [redacted] Thao Dang
 Printed Name Date Signature
mask
Michael Barnes [redacted] [Signature]
 Printed Name Date Signature
mask
Li-Ran Xia [redacted] [Signature] 20
 Printed Name Date Signature

 Printed Name Date Signature

 Printed Name Date Signature

 Printed Name Date Signature

Witness:

 Printed Name Date Signature

 Printed Name Date Signature

Return to: Gaile Bailey
Mail Stop: 2061
Fax No.::: 986-3090
Extension: 563-2724